EFFICACY EVALUATION AND TECHNICAL MANAGEMENT SECTION

EFFICACY REVIEW-I

Antimicrobial Program Branch

IN 05-31-88 OUT 10/26/88

Srinivas Gowda 11/4/88

Reviewed By Srinivas Gowda Date 10/26/88

EPA Reg. No. or File Symbol 1043-92

EPA Petition or EUP No. None

Date Division Received 03-15-88

Type Product(s): Hospital Disinfectant

MRID No(s) 405219-01

Product Mgr. No. 32 (Kempter)

Product Name(s) LpH® se One-Step Germicidal Detergent

Company Name (s) Calgon Vestal Laboratories

Submission Purpose Amendment to add virucidal claim against HIV-1 (AIDS virus) with efficacy data and labeling

Chemical & Formulation Liquid to be used diluted

Active Ingredient (s): %

o-phenylphenol.....7.3

p-tertiary amylphenol.....7.4

200.00 Introduction

200.1 Use (s)

Refer to the most recently accepted labeling dated 06-17-87. Also, proposed labels are attached.

200.2 Current Submission

The current submission is a proposed amendment to add a virucidal claim for the products as a disinfectant against HIV-1 (AIDS virus) with supporting efficacy data and revised labelings.

200.3 Previously Accepted Virucidal Claims: The accepted labels bear the following virucidal efficacy claims for the products when used as disinfectants.

Virucidal against Herpes Simplex Type 2, Influenza A_2 (Japan), Vaccinia and Adenovirus Type 2 when used as directed on the label as a disinfectant for 10 minutes at room temperature.

200.4 Applicability of Submitted Efficacy Data: LpH_{ag}, EPA Reg. No. 1043-91 is identical in formulation to LpH_{se}, EPA Reg. No. 1043-92. Therefore, the submitted data developed on LpH_{se} are also applicable to LpH_{ag} at equivalent use dilution.

201.0 Data Summary

201.1 Brief Description of Test (MRID 405219-01)

"BRI Study No. 22367-70 - The effectiveness of LpH_{se} to inactivate the Aquired Immune Deficiency Virus (HIV-1)/ AIDS (HIV-1) " by Sue C. Tondreau, Bionetics Research, Inc., Virus Isolation and Testing Laboratory, 5516 Nicholson Lane,Kensington,MD 20895,dated 02-04-88.

201.2 Test Summary:

a. Method Reference:EPA Product Performance Guidelines 91-2, and BRI HIV test protocol accepted by EE & TMS (Efficacy), APB, RD, on 07-27-87 (EPA letter dated 08-04-87).

b. Test Virus: Human immunodeficiency virus Type 1 (HIV-1/H9).

c. Virus Inoculum: Supernatant from HIV-infected H9 cells was harvested and concentrated by centrifugation, and frozen at -85°C until used. The virus inoculum consisted of virus pool in RPMI-1640 cell medium containing 5% fetal calf serum.

d. Test Procedure: One-tenth ml of virus inoculum, with 5% blood serum, was spread over marked 3x3-cm area of the surface of 100-mm (diameter) glass petri dishes (9 cm^2) and dried for 30 minutes at 35-37°C. After drying, 0.2 ml of disinfectant (undiluted) was spread over the virus film and allowed to

remain for 0.5, 1, & 2 minutes at 20-25°C. Then the virus-disinfectant mixture was diluted to 10^{-2} (non-virucidal level of disinfectant). The virus was concentrated from the diluted mixture by centrifugation at 19,000 rpm for 2 hours at 4°C and resuspended in RPMI-1640/10% fetal calf serum to provide 10^{-2} to 10^{-4} dilutions of virus. One ml of each dilution was inoculated into each of 4 cell cultures for determination of virus infectivity.

e. Controls: The positive virus control consisted of the dried virus incubated and diluted with RPMI-1640/10% fetal calf serum, and titrated for infectivity at 10^{-4} to 10^{-8} dilutions of virus. The virus/non-virucidal disinfectant control consisted of the dried virus incubated with the 10^{-2} (non-virucidal level of disinfectant) dilution of disinfectant, then diluted and titrated for infectivity as described for the positive virus control. The toxicity control consisted of the 10^{-2} (non-virucidal) dilution of disinfectant inoculated into cell cultures. The cell control consisted of the RPMI/ /10% fetal calf serum.

f. Infected Cell Virus Assay: To determine the presence of infective virus, samples were incubated with DEAE-dextran treated H9 cells for 90 minutes at 37°C for virus adsorption. After adsorption, cells were centrifuged and washed with fresh cell medium, then resuspended in fresh medium, distributed into tissue culture flasks, and reincubated for 28 days at 37°C for assays.

Assays were conducted at 7, 14, 21, and 28 days by the following methods:

Determination of viral cytopathic effect (CPE) by phase microscopy, and viral antigen by antigen-capture enzyme-linked immunosorbent sandwich assay (ELISA).

Cytotoxicity determined by phase microscopy gross morphological changes or cell death.

TCID-50 or TCLD-50 values were determined by the Reed-Muench method (Karber formula).

g. Test Samples:

LpHse

Lot No. 719-54 and Lot No. 719-55.

Manufacturing Dates: Not listed.

Test Dates: 10-21-87 to 02-04-88.

h. Dilution: 1:256 in 400 ppm hard water (as $CaCO_3$).

i. Exposure: 0.5, 1.0 and 2.0 minutes at 20-25°C in the presence of 5% blood serum and 400 ppm hard water (as $CaCO_3$).

j. Results:

	Disinfectant Exposure				ID-50/LD-50 (-Log 10)	
Test Sample	Temperature	Time	Organic Soil	Hard Water	A	B
Virus Control	NA	NA	5% Serum	NA	8.25	8.25
Virus + Non-Virucidal Disinfectant	20-25°C	2.0 Minutes	"	400 ppm	7.50	7.50
Virus + Disinfectant	20-25°C	0.5 Minutes	"	"	2.50	1.50
		1.0 Minutes	"	"	1.50	1.50
		2.0 Minutes	"	"	1.50	1.50
Toxicity Control	NA	NA	NA	"	1.50*	1.50*
Log Reduction	20-25°C	0.5 Minutes	5% Serum	"	5.00	6.00
		1.0 Minutes	"	"	6.00	6.00
		2.0 Minutes	"	"	6.00	6.00

NA = Not Applicable

*Represents titer for disinfectant dilution; all other titre represent virus dilutions in non-toxic levels of disinfectant (10^{-2} or greater).

k. Conclusions: The testing meets the requirements for demonstrating virucidal performance of the product against HIV-1 in the presence of 5% blood serum at a 1/256 dilution in 400 ppm $CaCO_3$ hard water with a contact time of 1 and/or 2 minutes at room temperature (20-25°C).